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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

**Kunihiko Hori, et al.**

Confirmation Number: 2700

Serial No.: 10/085,135

Group Art Unit: 3764

Filed: March 1, 2002

Examiner: Quang D. Thanh

For: **MASSAGE MACHINE AND  
PHYSIOLOGICAL QUANTITY MEASURING ...**

Attorney Docket: 020235

**RESPONSE AFTER FINAL REJECTION****\*\*\*\*please expedite\*\*\*\***Commissioner for Patents  
P.O. Box 1450, Alexandria, VA 22313-1450  
Sir:

Date: September 9, 2004

This paper is in response to the Office Action mailed on March 18, 2004. **Please charge Deposit Account No. 01-2340 for the cost of a three-month extension of time.** Any other fees needed for entry of this paper may also be charged to Deposit Account No. 01-2340. Please consider this paper as a petition for an appropriate extension of time.

The Examiner is requested to consider the following remarks:

[1-2] Claims 1, 2, 4, and 6-8 were rejected under 35 U.S.C. §103 as being unpatentable over Inbe (U.S. Patent 5,993,401) in view of Stark (U.S. Patent 6,371,123).

Claim 1 as amended recites "wherein the means for judging the psychological state of the person being massaged judges the psychological state based on a *time rate of change* of the physiological quantity" (emphasis added). The word "rate" means "a certain quantity or amount of one thing considered in relation to a unit of another thing" (Random House Dictionary), so that *two* quantities are involved in a "rate." The phrase "time rate of change" further implies numerical division by time.

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In the Applicant's Fig. 6, "A/SEC" illustrates a quantity divided by time. The quantity  $\Delta G$  is numerically comparable to A/SEC (this is indicated by symbols "<" and ">") and therefore must have the same units; i.e.,  $\Delta G$  is also a quantity divided by time.

The Examiner applies Inbe against this new feature, and points to col. 4, lines 1-27 and col. 6, lines 7-24. The Applicants reply:

(1) In the passage cited in col. 4, Inbe explains that its massage speed is determined by a quantity  $\{HR(0)-HR(n)\} \div HR(0)$ . In this formula,  $HR(0)$  denotes an initial heart rate and  $HR(n)$  denotes a later heart rate. The quantity is converted to a percentage and divided into ranges, and within each range a corresponding respective massage rate  $S1, 2, \dots S5$  is used. This is illustrated in Fig. 4 of Inbe.

The Applicants respectfully submit that  $\{HR(0)-HR(n)\} \div HR(0)$  corresponds to a change in a physiological quantity (the heart rate), but not to a time rate of change of that physiological quantity. (A number of heart beats by itself is not a meaningful physiological quantity.) Time does not appear in the formula  $\{HR(0)-HR(n)\} \div HR(0)$ , so there is no time rate of change of a physiological quantity.

The Examiner is invited to consider that Inbe's formula is analogous to a formula concerning the changing speed of an automobile. If an automobile changes from, say, 30 mph to 60 mph, it has increased its speed by a factor of two; but that says nothing about the time rate of change of the speed, i.e., the acceleration.

(2) The cited passage at col. 6, lines 7-24, discloses measuring the time taken for the heart to complete twenty beats, which Inbe refers to as a "heartbeat attainment time" (col. 6, line 13). This is a heart rate (more accurately, it is the inverse of heart rate, being lower if the heart beats faster) and is a physiological quantity, as mentioned above.

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Inbe repeatedly measures the heartbeat attainment time and takes the ratio of each measured time to the initial time, denoting this ratio as the "change rate" (col. 6, lines 36-40). The "change rate" determines the massage speed (col. 6, lines 40-59). Despite the name, Inbe's "change rate" is not a time rate of change, because it is a *ratio* of two heart rates. Time is canceled when one heart rate is divided by another, so that time is not a dimensional unit of the "change rate."

Inbe again does not disclose a time rate of change, meaning an amount of change in a physiological quantity divided by a time interval.

(3) Fig. 3 of Inbe shows that the changes between the states S1, S2 ... are not entirely a function of heart rate, because they are limited to be within the lines PS and PL in Fig. 3; line PA is only an example (col. 4, lines 64-65). The limits PS and PL are absolute and the massage rate is related to the heart rate only within the bounds of PS and PL. So even if Inbe did disclose a time rate of change (not admitted), it would not disclose a true time rate of change.

(4) Stark is applied only as an alternate reference. The Examiner asserts that Inbe's microprocessor anticipates the same feature that Stark discloses. With respect, the Examiner's assertion teaches against combination, since Inbe already has the feature of Stark, if the Examiner is correct.

[5] Claims 3 and 5 are rejected under 35 U.S.C. §103 as being unpatentable over Inbe and Stark in further view of Ulrich (U.S. Patent 6,024,575). This rejection is respectfully traversed on the basis of the dependence of claims 3 and 5 from allowable claims.

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[6] Claims 1-6 are rejected for obviousness-type double patenting over claims 10-16 of Application 09/995,801. This rejection is respectfully traversed. The feature added by the December 29 Amendment, the time rate of change of a physiological quantity, is not disclosed in the claims and is not at all suggested by the claims of the '801 application.

Claims 10 and 16 of the '801 application refer to "variations" in sensor information, but this word is very general and does not anticipate. Claim 14-16 of the '801 application refer to "reduced" and "increased" heart rates, a "rise" or "fall" in skin temperature, and "low" and "high" activity. These claims also do not disclose or suggest a time rate of change.

The allowance of claims 9-13 is noted with appreciation.

Respectfully submitted,

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*I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office (Fax No. (703) 872-9306) on September 9, 2004.*

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